

TABLE 6.6. Differences in amino acid composition between mesophilic and thermophilic proteins

Amino Acid	Gains	Losses	P^a	Change (%)
Ile	842	658	2.2×10^{-6}	9.5
Glu	739	562	1.0×10^{-6}	9.1
Arg	383	214	4.5×10^{-12}	16.5
Lys	789	620	7.4×10^{-6}	8.3
Pro	167	96	0.000014	7.0
Tyr	224	177	0.021	5.8
Ala	504	458	0.15	2.8
Trp	23	11	0.058	8.3
Leu	560	548	0.74	0.6
Cys	72	69	0.87	0.9
Phe	200	202	0.96	-0.3
Asp	429	432	0.95	-0.2
Val	666	670	0.93	-0.2
His	80	92	0.40	-2.8
Gly	201	264	0.0040	-3.4
Met	174	248	0.00037	-11.3
Gln	158	234	0.00015	-13.1
Thr	336	431	0.00068	-8.4
Asn	313	481	2.7×10^{-9}	-15.9
Ser	271	664	9.5×10^{-39}	-31.7

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^aThe random probability of a directional bias greater than or equal to that observed (calculated using the two-tailed **binomial distribution**, indicating statistical significance).